

WHAT IS CLAIMED IS:

1. A method of producing primary human erythroid cells comprising the steps of:
 - (i) obtaining light-density cells from a blood sample;
 - (ii) culturing said light-density cells in a first culture medium comprising stem cell factor, erythropoietin, interleukin-3, dexamethasone and estradiol, thereby obtaining proliferation of the cells; and
 - (iii) re-culturing said cells in a second culture medium comprising erythropoietin and human insulin, thereby obtaining differentiation of the cells into primary human erythroid cells.
2. The method according to claim 1, wherein said first culture medium is IMDM containing 20% of fetal bovine serum and said second culture medium is IMDM containing 20% of fetal calf serum.
3. The method according to claim 2, wherein said first culture medium comprises stem cell factor 10 ng/mL, erythropoietin 1u/mL, interleukin-3 1 ng/mL, dexamethasone 10^{-6} M and estradiol 10^{-6} M and said second culture medium comprises erythropoietin 1u/mL and human insulin 10 ng/mL.
4. The method according to claim 3, wherein the cells are cultured in said culturing step for 8 to 14 days.
5. The method according to claim 4, wherein the cells are re-cultured in said re-culturing step for at least 4 days.
6. The method according to claim 1, further comprising washing the cells before said re-culturing step.

7. The method according to claim 6, wherein said first culture medium is IMDM containing 20% of fetal bovine serum and said second culture medium is IMDM containing 20% of fetal calf serum.

8. The method according to claim 7, wherein said first culture medium comprises stem cell factor 10 ng/mL, erythropoietin 1u/mL, interleukin-3 1 ng/mL, dexamethasone 10^{-6} M and estradiol 10^{-6} M and said second culture medium comprises erythropoietin 1u/mL and human insulin 10 ng/mL.

9. The method according to claim 8, wherein the cells are cultured in said culturing step for 8 to 14 days.

10. The method according to claim 9, wherein the cells are re-cultured in said re-culturing step for at least 4 days.